

Claims

1. An exhaust-gas purification system for the exhaust gases of an internal combustion engine comprising an oxidation catalyst and a downstream particulate filter, characterized in that
a hydrocarbon adsorber is arranged between the oxidation catalyst and the particulate filter.
2. The exhaust-gas purification system according to claim 1,
characterized in that
a zeolitic coating on a honeycomb body is used as the hydrocarbon adsorber, which includes a mixture of the zeolites ZSM5, DAY and comprises platinum at a concentration of 0.1 g/l of honeycomb body volume as a catalytically active component.
3. The exhaust-gas purification system according to claim 2,
characterized in that
the oxidation catalyst includes a catalytically active coating of platinum-activated aluminum oxide or aluminum silicate on a honeycomb body.
4. The exhaust-gas purification system according to claim 3,
characterized in that
a wall flow filter is used as the particulate filter, which is coated with an oxidation catalyst on the entry side thereof.
5. The exhaust-gas purification system according to claim 1,
characterized in that

the hydrocarbon adsorber comprises a storage capacity for hydrocarbons in the range between 1 and 50 g.

6. A method of operating the exhaust-gas purification system, particularly according to any of the preceding claims, characterized in that, during operating phases of the engine with exhaust-gas temperatures at the engine outlet below 200 °C, the hydrocarbons emitted by the engine and not converted by the oxidation catalyst are adsorbed at the hydrocarbon adsorber and the emitted soot particles are deposited on the particulate filter, while during operating phases of the engine with exhaust-gas temperatures at the engine outlet of more than 200 °C, the emitted hydrocarbons are converted by the oxidation catalyst, and the particulate filter is regenerated from time to time, wherein for initiating the regeneration, the exhaust-gas temperature is raised by engine modifications at the site of the hydrocarbon adsorber above the desorption temperature of the hydrocarbons and the stored hydrocarbons are desorbed and catalytically burned at the oxidation coating of the particulate filter to support the regeneration.
7. The method according to claim 6, characterized in that the concentration of hydrocarbons in the exhaust gas is raised by post-injecting hydrocarbons into the cylinders of the internal combustion engine during the storage phases in order to increase the mass of stored hydrocarbons.
8. Method of operating the exhaust-gas purification system, particularly according to any of claims 1 to 5, for purifying exhaust gases of an internal combustion engine including the steps of:

routing the exhaust gases through an oxidation catalyst,
routing the exhaust gases through a particulate filter,
the exhaust gas being routed through a hydrocarbon adsorber between the steps mentioned above.